

DISCUSSION OF THE AMENDMENT

Claim 1 has been amended by naming the component recited in step ac) as -- component Ac--. Claim 11 has been amended into independent form. Claim 13 has been canceled.

No new matter is believed to have been added by the above amendment. Claims 1-4, 6-8, 11, 12 and 14 are now pending in the application.

REMARKS

The rejection of Claims 1-4 and 6-8 under 35 U.S.C. § 103(a) as unpatentable over US 6,777,530 (Meixner et al) in view of US 5,641,855 (Scherr et al), is respectfully traversed.

An embodiment of the present invention, as recited in Claim 1, is a composition for treating hard surfaces, which composition, as component A thereof, is at least one water-soluble or water-dispersible compound which is prepared by

- aa) first crosslinking a compound selected from the group consisting of polyalkylenepolyamines, polyamidoamines grafted with ethyleneimine, polyether-amines and mixtures of said compounds, as component Aa,
- ab) with a compound selected from the group consisting of bifunctional crosslinkers having, as a functional group, a halogenhydrin, glycidyl, aziridine or isocyanate unit or a halogen atom, as component Ab, thereby forming a crosslinked reaction product, and
- ac) then reacting, by a Michael addition reaction at a temperature of from 30 to 100 °C, the crosslinked reaction product with, as component Ac, a monoethylenically unsaturated carboxylic acid selected from the group consisting of acrylic acid, methacrylic acid, ethylacrylic acid, salts, esters, amides or nitriles of monoethylenically unsaturated carboxylic acids, and mixtures thereof.

As previously pointed out, it is important that the order of the process steps is maintained, as explained in further detail below. Component A obtained according to the present invention provides for excellent properties with regard to rapid and streak-free drying, avoidance or reduction of the condensation of water etc. on hard surfaces, as

described in the specification at page 2, last paragraph. As described in the specification at page 12, lines 30-34, only by the order according to the process of the present invention such results are obtained.

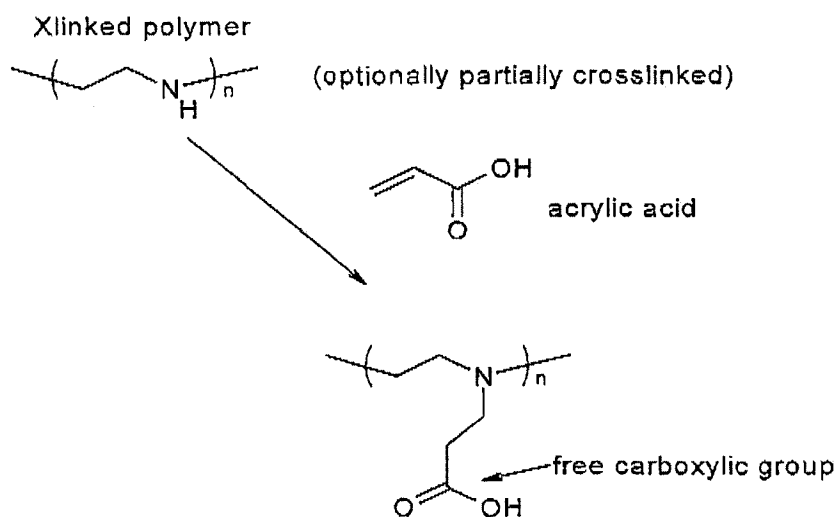
As previously pointed out, Scherr et al discloses water-soluble condensation products of amino-containing compounds and crosslinkers, obtainable by reacting components described therein as compounds (a), (b) and (c) (paragraph bridging columns 1 and 2), which condensation products are disclosed as used as drainage, flocculation and retention aids in papermaking (column 2, lines 23-25; column 6, lines 27-29). Scherr et al discloses further that their condensation products are prepared by reacting compound (a) with compound (b) and then reacting the product with compound (c), or by reacting the compounds (a), (b) and (c) all together (column 2, lines 16-23). In Scherr et al, compounds (a), (b) and (c) correspond to presently-recited components Aa, Ac, and Ab, respectively (except component Ac, which is narrower than compound (b)).

Thus, contrary to the present claims, which recite reacting components Aa and Ab to form a crosslinked reaction product, and then reacting this crosslinked reaction product by Michael addition reaction at 30-100 °C with component Ac, using Applicants' nomenclature of Aa, Ab, and Ac, Scherr et al either reacts components Aa and Ac to form a reaction product, and then reacts this reaction product with component Ab, or reacts Aa, Ab and Ac at the same time.

Thus, it is clear that neither of the two alternative processes disclosed by Scherr et al is the same or overlaps that of the present claims. Nor would it have been obvious to alter the order of reaction in Scherr et al since even a chemist with the most rudimentary knowledge of chemistry would appreciate that the product formed by altering the order of reaction would result in a different product.

In the present case, the order of reaction shows critical evidence, because completely different products are obtained if the crosslinking of the polyalkylenepolyamines, polyamidoamines grafted with ethylene imines, polyetheramines or mixtures thereof is carried out before the reaction with the monoethylenically unsaturated carboxylic acid or after the reaction with a monoethylenically unsaturated acid. In the first case, which is as the presently-claimed invention, wherein the crosslinking is carried out first, a crosslinking of the main chain of the polyalkylenepolyamines, polyamidoamines grafted with ethyleneimine or polyetheramines occurs and no crosslinking of the side chains which are introduced by reaction with the monoethylenically unsaturated carboxylic acids occurs. However, in the second case, if the reaction with the monoethylenically unsaturated carboxylic acids is carried out first and thereafter a crosslinking occurs, the crosslinking occurs also between the side chains of the compounds comprising side chains derived from the monoethylenically unsaturated carboxylic acids.

As previously presented, the following scheme shows the partial structure of the reaction product obtained by reacting crosslinked polyethyleneimine with an α,β -unsaturated carboxylic acid by a Michael-addition:



It is shown that component A according to the present invention comprises free carboxylic groups (COOH). It is believed that the presence of such carboxylic groups provide for superior results because these may interact with the water which runs off, especially in their anionic form COO^- , and repel dirt.

At the same time the nitrogen atoms N in the chain of the crosslinked polymer may be protonized forming ammonium ions which are believed to interact with the surface. In one preferred embodiment of the invention, compound A may be rendered amphoteric which can be a special advantage with regard to the interaction with the surface to be cleaned.

Meixner et al discloses crosslinked nitrogenous compounds which are soluble or dispersible in water for use in textile detergents and cleaners as soil release agents and enzyme stabilizers (column 2, lines 22-44) and which are obtainable by crosslinking of (a) compounds containing at least three NH groups ("polyamine compounds") with (b) at least bifunctional crosslinkers which react with NH groups (column 2, lines 12-18), wherein compounds (a) may be, for example, a polyalkylenepolyamine, a polyamidoamine grafted with ethyleneimine, a polyetheramine, or mixtures thereof (column 2, line 45ff) and crosslinkers (b), may be, for example, preferably selected from a long list of compounds grouped in groups (1)-(13) and mixtures thereof, among which groups include compounds having halogenhydrin, glycidyl, or aziridine groups, as well as, in group (3), monoethylenically unsaturated carboxylic acids, and their salts, esters, amides, or anhydrides (hereinafter referred to generically as "monoethylenically unsaturated carboxylic acids") (column 7, line 65ff).

It is not clear why, without the present disclosure as a guide, one of ordinary skill in the art would combine Meixner et al, drawn to use in cleaning textiles, and Scherr et al, drawn to use in papermaking, but even if combined, the result would not be presently-claimed invention.

Thus, if one of ordinary skill in the art were to use the monoethylenically unsaturated carboxylic acids of Meixner et al, combined with any of their other crosslinkers, as discussed above, the result would be the same as the embodiment of Scherr et al, discussed above, wherein Scherr et al's compounds (a), (b) and (c) are reacted together. Meixner et al neither discloses nor suggests crosslinking their compound (a) with a crosslinker (b) other than their monoethylenically unsaturated carboxylic acid, and then reacting this crosslinked reaction product by a Michael addition reaction with the monoethylenically unsaturated carboxylic acid. In other words, Meixner et al discloses a monoethylenically unsaturated carboxylic acid only to crosslink their polyamine compound (a).

In sum, if one of ordinary skill in the art were to combine Meixner et al and Scherr et al, the result would be equivalent to reacting presently-recited components Aa), Ab) and Ac) with each other, resulting in a final product in which the carboxyl groups of the monoethylenically unsaturated carboxylic acid participates in the reaction, rather than remaining unchanged, as in the present invention.

While the Examiner finds that Meixner et al discloses that acrylate groups are bonded to amine groups by Michael addition (column 9, line 40ff), this disclosure is in connection with Meixner et al's compound (a) being reacted with their crosslinker (b) described under group (4) (column 9, lines 23-38). In Meixner et al, their compound (a) is not yet crosslinked when a crosslinker (b) of group (4) is reacted therewith. In the present invention, on the other hand, and as discussed above, the monoethylenically unsaturated carboxylic acid is reacted with a **crosslinked** reaction product.

For all the above reasons, it is respectfully requested that the rejection be withdrawn.

The rejections under 35 U.S.C. § 103(a) of Claims 11 and 13-14 as unpatentable over Meixner et al in view of US 2003/0216272 (Sherry et al), and of Claim 12 as unpatentable

over Meixner et al in view of Sherry et al as evidenced by Scherr et al, are respectfully traversed.

The rejected claims are drawn to processes for treating hard surfaces. Sherry et al is relied on for a disclosure of treating hard surfaces. Without the present disclosure as a guide, it is not clear why one of ordinary skill in the art would use a textile detergent to clean hard surfaces. Nevertheless, Sherry et al does not remedy the above-discussed deficiencies of Meixner et al or Meixner et al combined with Scherr et al. Accordingly, it is respectfully requested that these rejections be withdrawn.

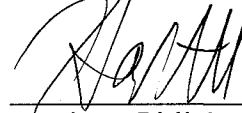
The objection to Claims 11, 13 and 14 as being in improper dependent form is respectfully traversed. Indeed, the objection would now appear to be moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that the objection be withdrawn.

All of the presently-pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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